

Serial No.: 10/660,471
Confirmation No.: 4947
Applicant: PALMBERG *et al.*
Atty. Ref.: 06730.0056.NPUS00

REMARKS:

REMARKS REGARDING AMENDMENTS TO THE SPECIFICATION:

Although not specifically addressed by the Office Action, request is made for replacement of paragraphs 32, 41, 43, 44, 45, 47, 57 and 59 of the specification. The paragraphs presented previously were found to contain errors with some numerals used for describing figures of the invention. Replacement of paragraphs, as requested, will reconcile the descriptive portion to the drawings of the present application.

REMARKS REGARDING CLAIMS AMENDMENTS:

Claims 1, 4, 5, 7 and 9 have been amended to overcome objection and rejection under 35 U.S.C. §112, second paragraph. New claim 11 provides an independent claim that should be allowed since it includes limitations of claims 1 - 4, corresponding to allowable subject matter identified by the Office Action. New claims 12 - 20 have dependence from either claim 1 or claim 9 to provide claims of varying scope that are also believed to be allowable. Claims 1 - 20 are pending in the present application.

IN RESPONSE TO THE OFFICE ACTION:

CLAIMS OBJECTIONS

The Examiner indicated objection to claims 1 and 9 due to the apparent lack of antecedent basis for the word "pressure" in these claims. Applicant submits that it is well known that pressure is a property of hydraulic fluid circulating in a power steering system. The word "pressure" is not viewed as an element of the invention and was not intended to be recited as such. Amendment of claims 1 and 9 is intended to overcome objection by removing recitation of either a definite or indefinite article before the word "pressure."

Serial No.: 10/660,471
Confirmation No.: 4947
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REJECTION UNDER 35 U.S.C. §112:

Claims 4 - 8 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 4, the Office Action stated, “a valve member” (emphasis added) is unclear because “one valve member” has been established, and it is unknown if another “member” is being referred. Amendment of claim 4 changes the indefinite article, “a,” to the definite article, “the” to overcome rejection under 35 U.S.C. §112, second paragraph.

Rejecting claims 5 - 8, the Examiner stated that “In claims 5 and 7, “an axis” is unclear because it does not appear that the motor actuates this element, but does actuate a wheel.” However, use of the word “axis” finds support in the present application at paragraphs [0058] to [0062], and particularly in paragraph [0059], which states, “a slight rotation of the eccentric axis 505 that is actuated by the motor 500 this will cause the valve house 520 to rotate - - -.” Numeral 505, in Figure 8, refers to a cam element corresponding to the “eccentric axis.” Support from paragraph [0059] and Fig. 8, justifies amendment of claims 5 and 7 to recite “a cam,” which clarifies the intended claimed subject matter thereby overcoming rejection under 35 U.S.C. §112, second paragraph.

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REJECTION UNDER 35 U.S.C. §102:

Discussion of differences between the present invention and the reference includes a table providing requirements of claims of the present invention and a summary of teachings of Duffy as follows:

Comparison of the present invention with teachings of the reference (Duffy)

Claims Requirements of the Present Invention	Duffy U.S. 5,029,513
<p>Claims 1 and 9 each recite "A hydraulic power assisting steering apparatus comprising a valve - - - to be actuated depending on an applied torque for altering pressure of an hydraulic fluid - - - the valve is - - - dynamically actuated further, according to a control mechanism depending on at least one - - - input parameter."</p> <p>The present invention provides a valve actuated by steering torque to alter hydraulic fluid pressure "received by a hydraulic power steering system." Dynamic actuation of the valve, according to a control mechanism, causes additional valve movement. Additional valve movement occurs by way of an input parameter to the control mechanism</p>	<p>Duffy teaches a hydraulic power steering system (10) comprising a valve located in a pinion housing (16). The valve includes a valve sleeve (38) and a valve member (40) (Col. 3, lines 40 - 68). Steering wheel actuation of the valve member (40), according to Duffy, occurs only once to cause rotation of valve lands to change the flow pattern of hydraulic fluid passing through the valve. Rotation of the valve lands also alters the pressure of hydraulic fluid received by the power steering system (10).</p> <p>Rather than suggesting further movement or actuation of any part of the valve (38, 40), the reference clearly teaches that the variable orifice valve (86) under control of the solenoid actuator (98) produces an increase in hydraulic fluid pressure for steering assist during high speed maneuvers (Col. 5, lines 29 - 53).</p>
<p>Claims 2 and 10 recite that the "valve is arranged to be dynamically actuated further by a hydraulically, a pneumatically or a electromechanically displacing of one member of the valve."</p>	<p>The Office Action does not address how Duffy teaches further dynamic actuation of a power steering valve by hydraulic, pneumatic or electromechanical means.</p>
<p>Claim 3 recites, "one valve member is arranged to be - - - axially displaced with respect to a shaft"</p>	<p>The Office Action does not address how Duffy teaches axial displacement of a steering valve member with respect to a shaft.</p>

Serial No.: 10/660,471
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Atty. Ref.: 06730.0056.NPUS00

Further detailed discussion addresses rejection of Claims 1 - 3, 9 and 10 under 35 U.S.C. §102(b) as being anticipated by Duffy (U.S. Patent No. 5,029,513). A statement from the Office Action is included below for convenient reference when reviewing applicant's response to rejection of claims 1 and 9 of the present invention, as follows:

"Duffy discloses a hydraulic power steering apparatus comprising:

Valve 40 to be actuated on an applied torque (via steering wheel) for altering a pressure of fluid to be received by a power steering system 10.

Wherein the valve is actuated further, according to a control mechanism 98 depending on an external vehicle input parameter (turn executed via steering wheel),

Via hydraulically displacing valve member 70/72 in a rotational manner.

For there to be anticipation under 35 U.S.C. §102, "each and every element" claimed by the present invention must be found either expressly or inherently described in the reference of Duffy. The following discussion provides evidence that Duffy fails to satisfy the requirements of an anticipating reference since it does not teach or inherently describe subject matter required by claims 1 and 9 of the present invention.

Rejection of claim 1 and claim 9 relies upon general reference to figures of Duffy using selected numerals therefrom in support of claims rejection. Such rejection, without reference to the descriptive portion of the reference, causes incomplete appreciation of precisely what the reference teaches.

Differences between the power steering system of the present invention and that of the reference were summarized previously in tabular form. The following discussion adds evidence of how Duffy fails to satisfy requirements for anticipating claims of the present invention.

Review of Duffy, considering the descriptive portion and drawings of the reference, reveals teaching of a rotary steering valve 24 having a valve sleeve 38 and an inner valve member 40 (see e.g. Col. 3 lines 42 - 68, Fig. 2 and Fig. 3). The valve sleeve 38 and an inner valve member 40 are arranged to be rotatably displaced with respect to each other in an amount that depends on the torque that the driver applies to the steering wheel (see e.g. Col. 4 lines 1 - 37). However, with the exception of the displacement caused by the torque applied by the driver there is no further rotation or displacement of the valve sleeve 38 or the inner valve member 40.

Serial No.: 10/660,471
Confirmation No.: 4947
Applicant: PALMBERG *et al.*
Atty. Ref.: 06730.0056.NPUS00

In particular, the valve sleeve 38 and/or the inner valve member 40 are not rotated or displaced further according to a control mechanism depending on a vehicle input parameter.

The rotary steering valve 24 in Duffy is assisted by a second valve 86 that is denoted "variable-orifice valve". The variable-orifice valve 86 is controlled by an electronic control module 94 (Col. 6, lines 18 - 39), which receives a vehicle speed signal from a sensor. The variable-orifice valve 86 is closed at low vehicle speeds, which interrupts the flow of hydraulic fluid in the high speed supply channel 88, 92 that is coupled to the valve sleeve 38 of the steering valve 24, whereas the variable-orifice valve 86 and consequently the high speed supply channel 88, 92 opens gradually as the vehicle speed increases (see e.g. Col. 4 lines 40-68). The assisting variable-orifice valve 86 is more thoroughly described beginning at Col. 6 line 18.

Applicant submits that Duffy utilizes two separate valves (i.e. a first rotary valve 24 and a second assisting valve 86) to achieve a variable steering assist force that can be dynamically adjusted to fit a specific driving scenario. Rather than suggesting further movement or actuation of any part of the valve (38, 40), the reference clearly teaches that the variable orifice valve (86) under control of the solenoid actuator (98) produces an increase in hydraulic fluid pressure for steering assist during high speed maneuvers (Col. 5, lines 29 - 53). Conversely, the present invention employs a single valve arranged for rotation via application of steering torque with further dynamic rotational adjustment to produce a variable steering assist force that fits a specific driving scenario.

In view of the above, Applicant requests the reconsideration and withdrawal of the rejection of claims 1 and 9 under 35 U.S.C. §102(b).

Applicant has addressed rejection of claims 1 and 9 under 35 U.S.C. §102(b), but could find no evidence in the Office Action of how Duffy teaches the limitations of claims 2, 3 and 10 of the present invention. The reference is silent regarding "further dynamic actuation" of the power steering valve following its deflection by driver applied torque. Particularly, the Office Action fails to suggest how Duffy teaches the use of hydraulic, pneumatic or electromechanical means to accomplish further dynamic valve actuation that causes either rotational or axial displacement of one valve member.

Serial No.: 10/660,471
Confirmation No.: 4947
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Atty. Ref.: 06730.0056.NPUS00

The lack of teaching by Duffy and failure to address claims 2, 3 and 10 in the Office Action is evidence that the reference does not anticipate these claims of the present invention. Accordingly, request is made for reconsideration and withdrawal of rejection of claims 2, 3 and 10 under 35 U.S.C. §102(b).

ALLOWABLE SUBJECT MATTER

Applicants gratefully acknowledge indication of allowable subject matter based on claims 4 - 8. For reasons presented previously, it is believed that claims 1 - 10 are allowable and rejection under 35 U.S.C. §112, second paragraph, has been resolved. New claim 11 is included as an allowable independent claim since claim 11 includes the limitations of original claims 1 + 2 + 3 + 4.

CONCLUSION

The following review of the prior art of Shtarkman et al. (U.S. 5,517,096); Kato et al. (U.S. 5,303,793) and Eckhardt et al. (U.S. 5,119,898), that is made of record but not relied upon, suggests that the references fail to teach subject matter claimed by the present invention.

Shtarkman et al. discloses a power steering system 10 that includes a housing 44, a first valve member 40 supported for movement relative to the housing and a second valve member 42, movable relative to the housing 44 and the first valve member 40. A power steering resistance control system 100 resists relative movement between the first and second valve members 40, 42. Contrary to claims in the present invention, Shtarkman et al. does not teach further actuation of any valve parts.

Kato et al. discloses a rotary valve 20 and a power steering apparatus having a reduction mechanism 41 and steering characteristic generating mechanism 45. The teachings of Kato et al. indicate that the rotary valve 20 is only actuated depending on steering torque applied by the driver, but is not actuated further as required by claims in the present invention.

Eckhardt et al. discloses an integral electromagnetic mechanism 92 that is used in combination with a conventional torsion bar 90 to define a variable resiliency coupling between the hydraulic fluid supply elements in a rotary valve 16. The electromagnetic mechanism 92 has sufficient power to counteract the steering effort applied by a driver. The reference teaches that

Serial No.: 10/660,471
Confirmation No.: 4947
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Atty. Ref.: 06730.0056.NPUS00

the magnetic force exerted by the electromagnetic mechanism 92 operates to restore or at least counteract any deflection of the torsion bar 90, but does not provide further actuation. This is clearly contrary to a further dynamical actuating of at least one valve member, as required by claims of the present invention.

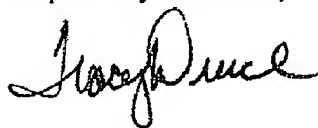
Applicants have made an earnest attempt to respond to all the points included in the Office Action and, in view of the above, submit that requirements for an anticipating reference, under 35 USC §102, have not been met by Duffy. Amendment of claims places the application in condition for allowance. Consequently, request is respectfully made for reconsideration of the application and notification of allowance of pending claims 1 - 20 in the next paper from the Office.

The undersigned representative requests any extension of time that may be deemed necessary to further the prosecution of this application.

The undersigned representative authorizes the Commissioner to charge any additional fees under 37 C.F.R. 1.16 or 1.17 that may be required, or credit any overpayment, to Deposit Account No. 14-1437, Order No. 06730.0056.NPUS00.

In order to facilitate the resolution of any issues or questions presented by this paper, the Examiner should directly contact the undersigned by phone to further the discussion.

Respectfully submitted,



Tracy Druce
Patent Attorney
Reg. No. 35,493
Tel. 202.293.7333